

Claims

1. A cutter (1) of a rotary pump for liquids containing solid materials, the cutter having a rotating blade (2) having at least one opening (5) through which the liquid flows that forms a cutting edge and the blade is directed with one end face (8) toward a nonrotating counter surface (9) that also has at least one opening (12) through which the liquid flows, characterized in that the end face (8) of the blade (2) that directed toward the counter surface (9) is convex, whereas the counter surface (9) is complementarily concave.

2. The cutter according to claim 1, characterized in that the curvature of the blade (2) forms a spherical cap (dome).

3. The cutter according to claim 2, characterized in that an end of a radius (R) of the spherical cap is situated on an axis of the pump shaft at the same level as a shaft bearing that is near the pump impeller.

4. The cutter according to one of the preceding claims, characterized in that the rotating blade (2) is attached to the pump impeller at an end that is directed away from the counter surface (9).

5. The cutter according to one of the preceding claims, characterized in that the counter surface (9) is formed by a

nonrotating element (10) that can be fixed in or on the pump housing or that is formed by the pump housing.

6. The cutter according to one of the preceding claims, characterized in that the flow-through openings (12) narrow in a flow direction and thus flare in a downstream direction.

7. The cutter according to claim 5 or 6, characterized in that the nonrotating element (10) is mounted in an annular flange (11) that can be attached in or on the pump housing.

8. The cutter according to one of the preceding claims, characterized in that the rotating blade (2) has two to four, preferably three sector-shaped openings (5).

9. The cutter according to one of the preceding claims, characterized in that the nonrotating element (10) has four to six, preferably five sector-shaped openings (12).

10. The cutter according to one of the preceding claims, characterized in that the cutting edges (7) of the in particular radial webs (6) are formed or supported between the openings (5) of the cutter (2).

11. The cutter according to one of the preceding claims, characterized in that it has an inlet tip (13) between the sector-shaped openings (12) of the nonrotating element.

12. The cutter according to one of the preceding claims, characterized in that the rotating blade (2) has the function of a further axial impeller due to the design of the intake ports 5 that extend at an angle relative to the rotational direction.